



Technology Review

Getting Ready for the next 10 Years...





The Beginning - 2004

- Non-standard equipment configurations
- Slow connectivity between buildings
- Separate computer networks in each building
- Single, slow connection to Internet
- Different phone system in each building – no voicemail in 2 buildings
- No standardization, consolidation, coordination or centralization



The LAST 10 Years (2004-2014)

- Completion of high-speed private fiber ring to all school buildings
 - Provides inter-building communications for data and voice
 - High availability of district resources across network
- Network Overhaul in 2004
 - Replaced all network equipment to provide high speed access from desktops (100MB)
 - Provided Power-Over Ethernet capability for future growth
 - Created back-bone for wireless services
- Introduced leasing programs in 2005
 - Leases ranging from 3 – 5 years depending on equipment and use
 - Flat annual budgeting - no more hills and valleys of spending
 - Benefit of getting ALL equipment up-front, everything is the same age
 - Create regular obsolescence cycle – replace equipment on-time
- Standardized computing equipment & software
 - Regular refresh cycles
 - Easier maintenance and support
 - Microsoft School Agreement – reduced costs for licenses & upgrade path
- Wireless Upgrade in 2008 and 2011
 - Added wireless to GHS, GIS and Bullock in 2008
 - Added wireless to Bowe and Rodgers in 2011 in preparation for PARCC and EE4NJ





The LAST 10 Years (2004-2014)

- **Centralized, Standardized Phone System (2006)**
 - Consolidation of Voice lines for cost savings
 - Consolidation of Data Circuits
 - **Shared services and resources with Rowan University (2006)**
 - Network and Internet
 - **Managed Print Services (2010)**
 - Entire fleet on flat payment plan reducing costs for maintenance and toner
 - Secured printing for enhanced confidentiality and document tracking
 - **Facilities Integration (2010, upgrade in 2014)**
 - Keyless Door Access
 - HVAC monitoring Systems
 - **Virtualization**
 - Reduction of physical servers and operating costs
 - Ability to add services on the fly
 - **Emergency Contact Systems**
 - **Interactive Classroom Technology**
 - Projectors, Document Cameras, Interactive Boards
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The LAST 10 Years (2004-2014)

- System implementations and migrations
 - Systems 3000 Financial System
 - Tenex and then PowerSchool Student Information System
 - Follett Library System
 - Read180
 - NWEA MAP
 - Lunchtime Cafeteria and POS
 - Physical Access Manager
 - Exchange email
 - Naviance for Students
 - Schoolwires Centricity Web Content Management System
 - Synergy File Share
 - Assist Work Orders
 - Nimbus Social Classroom
 - Tracker and then IEP Direct for Special Education
 - EquiTrac Secured Printing
 - Network Security Appliances
 - Email Spam and Archive Appliances
 - Teachscape for EE4NJ
 - Square9/GlobalForm
 - Web-based electronic forms and document archiving






Today (Dec 2014)

- Private high speed fiber (1gb backbone)
 - Cat 5/5e to Desktop (100MB)
 - Wireless ABG (54MB shared)
 - High Speed Internet (300mb)
 - Providing ...
 - VOIP & Internet access
 - Facilities Access & HVAC monitoring
 - Managed & Secured Printing Services
 - Network Resources & Security
 - For
 - 30 Servers, 1,200 computers, 7 buildings
 - 2,300 users (Staff & Students)
 - With 4.5 Technology Support Staff
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Today's Reality (Dec 2014)

- Designed for devices from 10 years ago and what we anticipated then
- Infrastructure is aging and some components are near or at end-of-life (obsolescence)
- Is not capable of handling an increase of connected devices (increase 50% since 2004)
- Is not designed to handle the increased throughput required by today's interactive classrooms
- Trying to plan and anticipate for future needs – *PARCC, video, 1-to-1, X-to-1, BYOD, BYOT*



Preparing for the next 10 Years: What needed yesterday

- Network Infrastructure upgrades
 - Bandwidth increases
 - Network increases to 1GB to desktop
 - Wireless capacity increases (ACN up to 1.3GB)
 - Capacity increases
 - Additional devices (X-to-1 or 1-to-1)
 - Bring Your Own Device/Technology initiatives
 - Phone System upgrades
 - End Of Life for existing systems
 - Advances in VOIP technology
 - Integration into security and surveillance systems
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Preparing for the next 10 Years : What we need soon

- **Replace antiquated bell and PA systems**
 - Introduction of new single wire technology
 - Digital signage
 - Integrates with proposed voice systems
- **Video Distribution Systems**
 - Next step for TV Production Upgrade from 2013
 - Provide “YouTube” for enterprise
- **Interactive Classrooms**
 - Replace aging projectors and Smartboards with emerging interactive technology





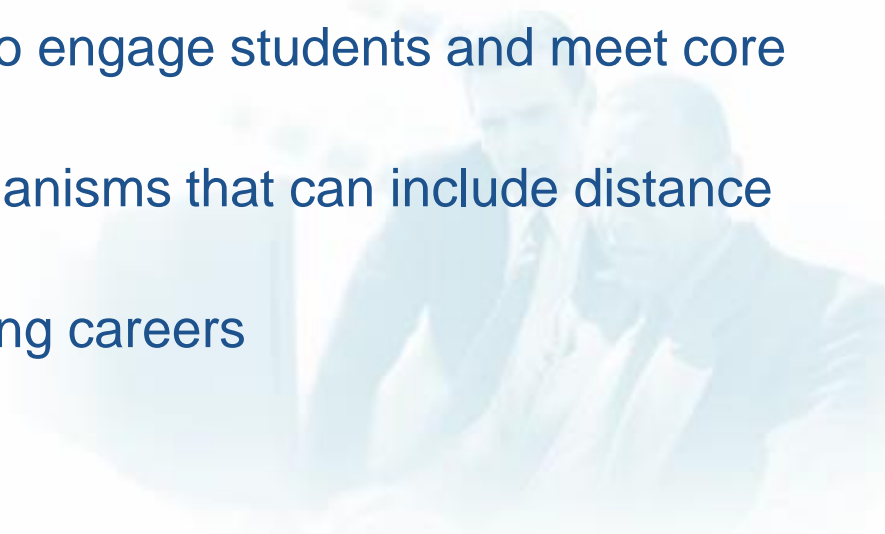
Preparing for the next 10 Years: What we will need shortly

- Additional Student Computers
 - Laptop carts in more classrooms
 - 1-to-1??
- Increase Number of Support Staff
 - Currently 4.5 people
 - Going to need an “Interactive” Specialist
 - Going to need additional Systems Support
 - Should have additional network/security support
 - Eventually need additional techs for more carts





Maintaining for tomorrow

- Continue regular refresh cycles to stay on top of technology changes
 - May require additional leases
 - May require expansion of refresh scope
 - Don't keep up with the Jones - Appropriate technology that fits US
 - Continue leasing where possible to equalize budget
 - Digital, Interactive Classrooms
 - Appropriate use of technology to engage students and meet core curriculum standards
 - Provide alternate delivery mechanisms that can include distance learning
 - Provide usable skills for emerging careers
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Why are we doing this?

- Technology is NO longer just using word processing or slide show software
- Technology is constantly evolving
- Integration IS here and embedded into our everyday lives
 - Embedded into core curriculum
 - Hands on and interactive
 - Provides 21st Century skills student MUST learn to be successful in chosen career
- It's been here and we are starting to fall behind!
 - Minimum budgets, deferred spending, other priorities



Building for stuff that hasn't been invented yet...

- 1981 - IBM introduced “modern” Personal Computer
- 1985 - AOL dial-up Internet - 1989 AOL “You’ve got mail”
- 1999 - Home Wi-Fi
- 2000 - Xbox
- 2001 - iPod
- 2002 - 3G Wireless
- 2004 - Facebook
- 2008 - iPod nano
- 2010 - iPad
- 2011 - Chromebook
- 2014 - 4G Broadband
- 2014 - Xbox One






Technology is NOT cheap

- Technology is constantly changing – obsolescence occurs in as little as 12 months
- Like the building they sit in or the bus they ride on, technology cannot be left to stagnate or it become useless
- We need to create consistent funding and be prepared to increase the funding at regular intervals





Technology Spending

- Will always be with us
 - Should not be viewed as a black hole because it is an investment in our future
 - Needs to be increased regularly as we add more to our base – just like your house
 - Is needed because this is what our children will face every day
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Our Children use technology

- A child will spend about 15,000 hours in school from Kindergarten through 12 grade
- Before the age of 18 a child will:
 - TALK > 10,000 hours on a cell phone
 - PLAY > 10,000 hours video games
 - WATCH > 8,000 hours of television
 - SEND > 20,000 emails & text messages
 - ACCESS > technology at their finger-tips than was used to put a man on the moon.



Something to think about

- A child is willing to spend \$50 - \$100 of their hard earned money on video games
- They will spend more time playing, learning AND researching how to beat that game than they will on all their homework for the next school year
- These games engage them constantly – forcing them to make decisions every 90 – 120 seconds
- In school they make 1 or 2 decisions per period (maybe)

**Name 3 jobs
that don't use or interact
with any technology
at all...**

